

Ceramic Textiles and Composites

3M™ Nextel™ 312 Woven Fabrics

Nextel™ 312 Fabrics are woven from strong continuous Nextel 312 Alumina-Boria-Silica fibers.

Nextel 312 Fabrics retain strength and flexibility with little shrinkage at continuous temperatures of up to 2012°F (1100°C).

Typical Applications

- Furnace curtains and zone dividers
- Furnace and duct linings
- Structural reinforcement
- Flexible seals and gaskets
- Sewn refractory parts and shapes
- Flexible thermal barriers
- Composite fire barriers
- Micrometeorite debris shields



Typical Properties:

Style	Weight (Sized)	Available Width	Thickness (Sized)	Thread Count		Yarn Type	Air Permeability w/o Sizing	Weave	Breaking Strength without Sizing	
				Warp	Fill				lb/inch (kg/cm)	lb/inch (kg/cm)
	oz/yd ² (g/m ²)	inch (m)	inch (mm)	per inch (cm)	per inch (cm)		ft ³ /min/ft ² (l/min/dm ²)			
AF-10	8.6 (292)	38 (0,97)	0.015 (0,38)	46 (18)	46 (18)	600d served roving	15 (46)	5 harness satin	115 (20)	140 (25)
AF-11	7.6 (258)	38 (0,97)	0.010 (0,25)	24 (9)	23 (9)	1200d roving	40 (122)	Plain	120 (21)	135 (24)
AF-12	8.1 (275)	58 (1,47)	0.013 (0,33)	25 (10)	25 (10)	1200d roving	15 (46)	5 harness satin	130 (23)	150 (27)
AF-14	9.0 (305)	38 (0,97)	0.014 (0,36)	20 (8)	17 (7)	900d 1/2	30 (91)	Plain	150 (27)	135 (24)
AF-20	13.4 (454)	36 (0,91)	0.020 (0,51)	30 (12)	26 (10)	1800d roving	15 (46)	5 harness satin	170 (30)	150 (27)
AF-30	17.6 (597)	36 (0,91)	0.030 (0,76)	19 (7)	18 (7)	1800d 1/2	50 (152)	Crow foot satin	200 (36)	180 (32)
AF-40	24.0 (814)	36 (0,91)	0.037 (0,94)	32 (13)	20 (8)	1800d 1/2	35 (107)	5 harness satin	300 (54)	190 (34)
AF-62	29.5 (1000)	4, 12, 30 (0,10; 0,30; 0,76)	0.054 (1,37)	40 (16)	20 (8)	1800d 1/2	100 (305)	Plain double layer	260 (46)	190 (34)

Fiber Properties:

Composition – Alumina-Boria-Silica

Density (non-porous) –

0.0975 lb/in³ (2.70 gm/cc)

Tensile Strength –

250 x 10³ psi (1720 mN/m²)

Continuous Use Temperature -

2012°F (1100°C)

Short Term Use Temperature -

2600°F (1426°C)

Melt Temperature –

3272°F (1800°C)

Other Characteristics – Non-oxidizing,

non-hygroscopic, essentially chemically
resistant, low thermal conductivity,
good abrasion, fire and flame resistance.

Important Processing Information

3M™ Nextel™ 312 Ceramic Fibers are coated during manufacture with sizings or finishes which serve as aids in textile processing. These sizings or finishes consist of organic polymers which may ignite and/or decompose to hazardous byproducts or process contaminants when first heated.

If Nextel 312 ceramic fibers are to be subjected to hot, humid environments for extended periods of time (e.g. 95°C, 100% relative humidity for ten days), heat treatment is necessary. The heat treatment changes the crystal structure of the fiber, preventing physical degradation in these conditions.

Heat cleaning is available to meet your safety or process requirements. See our "Nextel 312 Heat Cleaning/Heat Treating Instructions" and Health Safety Bulletin for more information.

IMPORTANT NOTICE TO PURCHASER

All statements, technical information, and recommendations contained in this brochure are based on tests conducted with 3M approved equipment, and are believed to be reliable. However, the accuracy or completeness of the tests is not guaranteed. THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE: The seller's and manufacturer's only obligation will be to replace the quantity of the product proved to be defective. Neither the seller nor 3M will be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, the user must determine the suitability of the product for his or her intended use.

3

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